

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) An audio system comprising at least one correction factor, the correction factor selected based on a method comprising:

generating acoustic signals from at least one loudspeaker placed at potential loudspeaker locations;

recording transfer functions for the generated acoustic signals at a plurality of listening positions;

determining at least one potential correction factor;

modifying the transfer functions based on the potential correction factors in order to generate predicted transfer functions for at least two of the plurality of listening positions;

statistically analyzing across at least one frequency of the predicted transfer functions for the at least two of the plurality of listening positions; and

selecting a correction factor based on the statistical analysis.

2. (Previously Presented) The audio system of claim 1, where the potential correction factor is a non-temporal correction factor.

3. (Previously Presented) The audio system of claim 2, where the non-temporal correction factor is selected from the group consisting of gain, amplitude, and equalization.

4. (Previously Presented) The audio system of claim 3, where the equalization is selected from the group consisting of parametric, graphic, paragraphic, shelving, FIR (finite impulse response), and transversal equalization.

5. (Previously Presented) The audio system of claim 1, where the potential correction factor is a temporal correction factor.

6. (Previously Presented) The audio system of claim 1, where the statistical analysis indicates efficiency of the predicted transfer functions for the plurality of listening positions.
7. (Previously Presented) The audio system of claim 6, where efficiency is examined for predetermined frequencies.
8. (Previously Presented) The audio system of claim 7, where selecting a correction factor based on the statistical analysis comprises selecting a value for the correction factor to increase efficiency of the audio system in the predetermined frequencies.
9. (Previously Presented) The audio system of claim 8, where the potential correction factor comprises potential volume correction; and
where selecting a value to increase efficiency comprises selecting a value that decreases volume of at least one of the loudspeakers in the audio system.
10. (Previously Presented) The audio system of claim 1, where the statistical analysis indicates consistency of the predicted transfer functions across the plurality of listening positions.
11. (Previously Presented) The audio system of claim 1, where the statistical analysis indicates flatness for the predicted transfer functions for the plurality of listening positions.
12. (Previously Presented) A computer readable medium having software for causing a computer to execute a method, the computer readable medium comprising:
instructions for generating acoustic signals from at least one loudspeaker placed at potential loudspeaker locations;
instructions for recording transfer functions for the generated acoustic signals at a plurality of listening positions;

instructions for determining at least one potential correction factor;

instructions for modifying the transfer functions based on the potential correction factors in order to generate predicted transfer functions for at least two of the plurality of listening positions;

instructions for statistically analyzing across at least one frequency of the predicted transfer functions for the at least two of the plurality of listening positions; and

instructions for selecting a correction factor based on the statistical analysis.

13. (Previously Presented) The computer readable medium of claim 12, where the statistical analysis indicates efficiency of the predicted transfer functions for the plurality of listening positions.

14. (Previously Presented) The computer readable medium of claim 12, where the statistical analysis indicates consistency of the predicted transfer functions across the plurality of listening positions.

15. (Previously Presented) The computer readable medium of claim 12, where the statistical analysis indicates flatness for the predicted transfer functions.

16. (Previously Presented) The computer readable medium of claim 12, further comprising instructions for recommending a specific correction factor.

17. (Previously Presented) An audio system comprising at least one loudspeaker, at least one correction factor, and a plurality of listening positions, the at least one correction factor for the audio system selected based on a method comprising:
recording transfer functions at the plurality of listening positions;
determining potential correction factors;
modifying the transfer functions based on the potential correction factors in order to generate predicted transfer functions for at least two of the plurality of listening positions;

statistically analyzing the predicted transfer functions for the at least two of the plurality of listening positions; and
selecting at least one correction factor based on the statistical analysis.

18. (Previously Presented) The audio system of claim 17, where the potential correction factor is a non-temporal correction factor.

19. (Previously Presented) The audio system of claim 18, where the non-temporal correction factor is selected from the group consisting of gain, amplitude, and equalization.

20. (Previously Presented) The audio system of claim 17, where the potential correction factor is a temporal correction factor.

21. (Previously Presented) The audio system of claim 17, where the statistical analysis indicates efficiency of the predicted transfer functions.

22. (Previously Presented) The audio system of claim 21, where efficiency is examined for predetermined frequencies.

23. (Previously Presented) The audio system of claim 22, where selecting a correction factor based on the statistical analysis comprises selecting a value for the correction factor to increase efficiency of the audio system in the predetermined frequencies.

24. (Previously Presented) The audio system of claim 23, where the potential correction factor comprises potential volume correction; and
where selecting a value to increase efficiency comprises selecting a value that decreases volume of at least one of the loudspeakers in the audio system.

25. (Previously Presented) The audio system of claim 17, where the statistical analysis indicates consistency of the predicted transfer functions across the plurality of listening positions.
26. (Previously Presented) The audio system of claim 17, where the statistical analysis indicates flatness for the predicted transfer functions across the plurality of listening positions.
27. (Previously Presented) A computer readable medium having software for causing a computer to execute a method, the computer readable medium comprising:
instructions for recording transfer functions at a plurality of listening positions;
instructions for determining potential correction factors;
instructions for modifying the transfer functions based on the potential correction factors in order to generate predicted transfer functions for at least two of the plurality of listening positions;
instructions for statistically analyzing the predicted transfer functions to determine at least one characteristic of the predicted transfer functions across the at least two of the plurality of listening positions.
28. (Previously Presented) The computer readable medium of claim 27, further comprising instructions for recommending a specific correction factor.
29. (Previously Presented) A method for selecting at least one correction factor for audio system comprising:
recording transfer functions at a plurality of listening positions;
determining potential correction factors;
determining potential values for at least one parameter in the audio system;
modifying the transfer functions based on the potential values in order to generate predicted transfer functions for at least two of the plurality of listening positions;
statistically analyzing the predicted transfer functions to determine at least one characteristic of the predicted transfer functions across the at least two of the plurality of listening positions;

modifying the statistical analysis based on the potential correction factors; and
selecting at least one correction factor based on the modified statistical analysis.

30. (Original) The method of claim 29, where modifying the statistical analysis comprises applying potential equalization factors.

31. (Previously Presented) The method of claim 30, where the statistical analysis determines a frequency with a maximum spatial variance for the predicted transfer functions, and

wherein the potential equalization factors are applied at the frequency with the maximum spatial variance for a predicted transfer function.

32. (Original) The method of claim 31, where the potential equalization factors comprise a center frequency at the frequency with the maximum variance, a bandwidth setting, a level setting.

33. (Previously Presented) The audio system of claim 1, where the audio system comprises a first loudspeaker and a second loudspeaker; and

where the correction factor selected is applied to at least one of the first loudspeaker and the second loudspeaker so that a signal for output on the first loudspeaker is different from a signal for output on the second loudspeaker.

34. (Previously Presented) The audio system of claim 33, where the first loudspeaker and second loudspeaker, prior to application of the correction factor, receive the same signal.

35. (Previously Presented) The audio system of claim 34, where the first loudspeaker and second loudspeaker comprise subwoofers.

36. (Previously Presented) The audio system of claim 34, where correction factors are selected for each of the first loudspeaker and the second loudspeaker; and

where the correction factor for the first speaker is different than the correction factor for the second speaker.

37. (Previously Presented) The audio system of claim 34, where the same signal comprises a signal output from a decoder.

38. (Previously Presented) The audio system of claim 37, where the same signal comprises a low frequency effects (LFE) signal.

39. (Previously Presented) The audio system of claim 34, further comprising selecting global correction to be applied to each of the first and second loudspeakers, the global correction providing global equalization of the first and second loudspeakers.

40. (Previously Presented) The audio system of claim 1, where modifying the transfer functions comprises generating predicted transfer functions for each of the plurality of listening positions;

and where statistically analyzing comprises analyzing the predicted transfer functions for the each of the plurality of listening positions

41. (Previously Presented) The audio system of claim 1, where the plurality of listening positions comprises two listening positions.

42. (Previously Presented) The audio system of claim 1, wherein the audio system comprise a plurality of loudspeakers at a plurality of loudspeaker locations;

wherein a plurality of correction factors may be applied to each of the plurality of loudspeakers;

further comprising determining different combinations of potential correction factors that may be applied to the plurality of loudspeakers; and

wherein modifying the transfer functions based on the different combinations of potential correction factors in order to generate the predicted transfer functions for each of the plurality of listening positions.

43. (Previously Presented) The audio system of claim 42, wherein the audio system comprises a first loudspeaker and a second loudspeaker;
- wherein the plurality of correction factors comprises a first correction factor and a second correction factor;
- wherein determining different combinations of potential correction factors comprises:
- a first combination having the first correction factor applied to the first loudspeaker and the first correction factor applied to the second loudspeaker;
 - a second combination having the first correction factor applied to the first loudspeaker and the second correction factor applied to the second loudspeaker;
 - a third combination having the second correction factor applied to the first loudspeaker and the first correction factor applied to the second loudspeaker; and
 - a fourth combination having the second correction factor applied to the first loudspeaker and the second correction factor applied to the second loudspeaker,
- wherein the plurality of listening positions comprises a first listening position and a second listening position; and
- wherein modifying the transfer functions based on the different combinations of potential correction factors comprises:
- generating a predicted transfer function at the first listening position for the first combination by superpositioning the transfer function from the first loudspeaker at the first listening position modified by the first correction factor with the transfer function from the second loudspeaker at the first listening position modified by the first correction factor;
 - generating a predicted transfer function at the second listening position for the first combination by superpositioning the transfer function from the first loudspeaker at the second listening position modified by the first correction factor with the transfer function from the second loudspeaker at the second listening position modified by the first correction factor;

generating a predicted transfer function at the first listening position for each of the second, third, and fourth combination; and
generating a predicted transfer function at the second listening position for each of the second, third, and fourth combination,
wherein statistically analyzing across at least one frequency of the predicted transfer functions comprises:

a first statistical analysis statistically analyzing at least one criterion for the predicted transfer function at the first listening position for the first combination and the predicted transfer function at the second listening position for the first combination;

a second statistical analysis statistically analyzing the at least one criterion for the predicted transfer function at the first listening position for the second combination and the predicted transfer function at the second listening position for the second combination;

a third statistical analysis statistically analyzing the at least one criterion for the predicted transfer function at the first listening position for the third combination and the predicted transfer function at the second listening position for the third combination; and

a fourth statistical analysis statistically analyzing the at least one criterion for the predicted transfer function at the first listening position for the fourth combination and the predicted transfer function at the second listening position for the fourth combination.

44. (Previously Presented) The audio system of claim 43, wherein the at least one criterion comprises flatness; and

wherein the first statistical analysis comprises analyzing flatness of the predicted transfer function at the first listening position for the first combination and the predicted transfer function at the second listening position for the first combination.

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45. (Previously Presented) The audio system of claim 43, further comprising ranking the first, second, third, and fourth combinations based on the first, second, third, and fourth statistical analysis; and

wherein selecting a correction factor based on the statistical analysis comprises manually selecting one of the first, second, third, or fourth combinations based on the ranking.